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# CANADIAN PATENT

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DOOR FRAME OR THE LIKE

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#### ABSTRACT

A frame covers a wall break-through intended to receive a door or the like. The frame includes a lining and two facings arranged substantially at right angles to said lining and at two side surfaces of said lining. The two facings are provided with dowel-shaped wall connecting members extending perpendicularly with regard to the plane of said facing members and connectable to the side of the facing members which is not visible from the outside of the frame. The wall connecting members are adapted to be plugged into corresponding fitting wall recesses, at least one of the two facing members and the lining means having those surfaces thereof which face and contact each other provided with plug means including dowel-shaped connecting members and corresponding recesses for receiving said last mentioned members.

The present invention relates to a frame or sash for covering or facing a wall breakthrough effected for a door or the like, which frame or sash comprises a lining and two covers or sashes arranged rectangularly on the two edges of the lining.

In most instances, such frames or sashes of U-shaped cross section are employed in connection with a nailed-on door while the recessed facing of the frame or sash on the side of the door forms a folded cover and the oppositely located decorative facing on the ornamental side of the frame or sash forms the ornamental covering or facing. It is the general tendency to  
10 connect such frames or sashes to the masonry by means of non-visible connections which heretofore was effected on the lining of the frame or sash. In other words, the lining of the frame or sash were heretofore connected to the masonry. It is known to connect wooden frames or sashes by adhesives or by means of brackets or the like which were mounted on the non-visible inner side of the sash lining and interengage each other by corresponding holding means which prior to the mounting of the wooden frame or sash were mounted in the wall breakthrough or blind lining members nailed onto the wall or inserted into the same. Both types of connections are, however, expensive and require a long assembly time which cannot be estimated precisely in advance for con-  
20 struction estimates. The blind lining members have to be mounted precisely and have to be aligned so that the free distance between them corresponds to a certain specified measurement and that the frame or sash with its lining can be fitted into the blind lining members and will have a vertical position and can be connected thereto. Furthermore, the holding means have to be mounted at definite portions of the blind lining elements so that they can cooperate with the brackets on the inner side of the lining of the sash or frame.

With frames or sashes for doors, heretofore those parts of a cover which are joined at a corner of a frame were mitered and connected together. In view of the high cost of production of a mitered connection, more recently  
30 the two facing parts are no longer mitered but are butt jointed. With frames or sashes of the above mentioned type which are not prefabricated and either in the form of a packet or individual elements transported by the manufacturer



to the building lot where they are assembled, it is cumbersome, time-consuming and expensive to connect the individual members of the facing in the heretofore customary manner by gluing them together. Visible connections such as screw connections or nails are totally unsuitable with frames of natural wood or finished varnished individual parts. The employment of screw clamps in order to precisely and firmly press the facings together during the hardening of the glue and to obtain a gap-tight connection will with mitered facings encounter considerable difficulties. Parts which have been glued together by butt jointing the same make the job somewhat easier, but the butt joint connection is, especially with natural wood frames or sashes of finished varnished individual parts, not suitable for optical reasons.

It is, therefore, an object of the invention to provide a frame or sash which at the building site can from prefabricated and easily transportable individual parts be assembled in a minimum of time and at low cost.

Accordingly, the door frame of the invention is for an opening through a wall to receive a door. The frame comprises liner members having side surfaces parallel to and spaced apart approximately the thickness of said wall and extending along the sides and top of said opening and secured together at the corners, facing members for covering the faces of said wall surrounding said opening, said facing members on each side of said wall having fasteners connecting the top and side members at the corners and overlapping the side surfaces of said liner members, a plurality of cylindrical-shaped dowel fasteners perpendicular to the faces of said wall and fitting in holes in the faces of said wall and in holes in said facing members of less depth than the thickness of said facing members to form concealed fasteners, and means to fasten said facing members to opposite side edges of said liner members, said means comprising cylindrical-shaped dowel fasteners parallel to said first dowel fasteners in holes in one side surface of said liner members and in holes in the facing members on one side of said wall of less depth than the thickness of said facing members to form concealed fasteners, one side edge of the liner members having a cutout step inwardly of the side surface on the face opposite the wall to form a door abutment, the opposite side edge of said liner members

having a cutout step on the opposite face adjacent the wall receiving the facing member on that side edge, the side surface on said side edge being formed by the bottom of said cutout step.

Other features and advantages of the invention will appear more clearly from the following specification, in connection with the accompanying drawings, in which:

Figure 1 represents a cross section through a portion of a wooden frame or sash, which cross section may be that of one of the two vertical side parts or of the horizontal upper part of the frame or sash.

Figure 2 shows a view and partially a section of a corner of the sash or frame with the cover or facing.

The fact or frame according to the present invention is characterized primarily in that the two facings are provided with dowel-shaped wall connecting members which form headless fastener pins of uniform cross section and are adapted to be connected to the non-visible inner side of the facing members, said wall connecting members being adapted to be inserted into corres-

ponding wall recesses, and is furthermore characterized in that at least one of the two facings and the lining have those non-visible connecting surfaces which face each other provided with plug connections comprising dowel-shaped connecting elements and corresponding recesses. With the frame or sash according to the invention, not the lining receives the connection with the masonry, but the facing. Preferably, the wall connecting members are formed by cylindrical dowels or other headless fastener pins of uniform cross section so that ordinary bores may be provided as fitting recesses on the wall sides whereby the mounting of the sash or frame will be extremely simple. By means of a

10 templet which practically looks like a facing, and which at those areas to which the connecting dowels are to be fastened on the inner sides of the facing, is provided with bores extending therethrough and is first placed upon one wall side in aligned position, it is possible first to bore dowel holes by an ordinary drilling machine into said wall side. By means of the same templet, after placing it on the other wall side, in the same manner dowel bores are bored into the other wall side. Connecting dowels are then placed into

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the dowel bores and in this way the facing is connected to the wall. This connecting method is equally well advantageous for frames or sashes of wood, joiner plates or the like, with which connecting members prior or after insertion into the wall recesses are placed into fitting recesses on the inner sides of the lining and may be glued in, and also for frames or sashes of synthetic material or metal. With the frame or sash according to the invention, the lining is, by means of the dowel-shaped connecting elements held fast by the facings connected to the wall. The connecting elements and the fitting recesses in the connecting surfaces between lining and facing may, especially with frames or sashes of wood, likewise have a simple round shape. These plug connections can in the plant producing the frame precisely be prefabricated and then have to be merely assembled at the building site. In this connection it is particularly advantageous and practical when also the connecting members and the fitting recesses are arranged perpendicular to the plane of the facings so as to be plugged into each other.

Referring now to the drawings in detail, the frame or sash includes a liner 1, a cover or recessed facing 2 and an ornamental cover or decorative facing 3. The two covers or facing members 2 and 3 have the inner side thereof which is facing a wall 4 and is not visible from the outside provided with bores 5 into which have been inserted cylindrical shaped fasteners or connecting dowels 6 which extend perpendicular to the plane of the facings and wall sides. These connecting dowels 6 are adapted to be inserted into dowel holes 7 on the wall sides, said holes having been bored by means of a templet placed upon the wall sides and aligned on precisely prefixed areas of the wall. The dowels 6 also fit in holes in the facing members of less depth than the thickness of the facing members so that the dowels are concealed. Depending on the thickness of the plaster or cover or the depth of the bores in the wall, connecting dowels of different length can be inserted into the dowel holes of the wall in such a way that they firmly rest in the wall and protrude therefrom with the desired and necessary length. The covers or facings have connecting surfaces 8 thereof which are not visible from the outside and extend in a plane parallel manner to the covers or facings 2 provided with bores 9 while the lining is provided

with bores 10. The cylindrical-shaped connecting dowel fasteners 11 are adapted to be inserted into the bores 9 and 10 and are likewise perpendicular to the covers or facing members which means that they extend parallel to the connecting dowels 6, which form headless fastener pins of uniform cross section. The bores or holes 9 are of less depth than the thickness of the facing members so that the fasteners 11 are concealed. When assembling this wooden frame or sash, first the cover 2 is connected to the lining 1 by means of the connecting dowels 11 and is glued to the connecting surfaces 8. Thereupon the lining together with the cover 2 is moved into the wall breakthrough perpendicular to the wall and if the connecting dowels 6 have first been connected to the cover 2, the cover 2 is connected to the wall 4 by inserting the connecting dowels 6 into the holes 7 in the wall. Subsequently, in an analogous manner, the ornamental facing 3 is connected to the wall 4 while simultaneously the connecting dowels 11, provided that they have first been connected to the ornamental cover are inserted into the bores 10 of the lining whereby the lining is connected to the ornamental facing. In addition thereto, these connecting dowels or the abutting surfaces 8 between the lining and the ornamental cover may be partially glued to their respective interengaging surfaces. The lining 1 and ornamental cover overlap each other to an extent which is greater than the occurring tolerances in the thickness of the wall so that the width of the lining does not have to be adapted to the thickness tolerances of the wall and no visible gap will be formed when the connecting surface 8 of the lining and the ornamental facing are spaced from each other.

On one side edge of the frame or sash, that portion of the end face or edge of the lining 1 which is not covered by the cover 2 forms a rectangularly cutout step for a door abutment. The depth of this cutout or step may whenever necessary be post machined in view of occurring tolerances and this may be done by a chip removing operation in conformity with the thickness of the door plate to be inserted into the sash. A substantially L-shaped seal is inserted into said cutout or step. The leg 12 of said seal which extends in a plane parallel manner with regard to the plane of the cover is flush with the visible wide side of the lining 1. The leg 13 which extends vertically



with regard to the plan of the cover is longer than the tolerance depth of the recess on the lining face side, said tolerance depth being measured in a direction perpendicular to the cover plane and the wall sides. In this way, by means of the seal, the post-machined recess surfaces of the lining which are plane parallel and perpendicular to the plane of the coverings can be covered optically so that with a frame or sash which was finished with varnish prior to its installation or was finished with veneer, no post varnishing or veneering of the post-planed recess will be necessary. Advantageously, the L-shaped seal consists of a synthetic rubber on a chloroprene basis. This brings about the advantage that the seal retains a high elasticity whereby a constant satisfactory low noise closing of the door and tight engagement of the door over its entire surface and around the seal will be assured. Furthermore, the seal will always remain in its position so as to be able to adapt itself by elastic deformation to the working of the wood.

On the side edge of the liner members opposite the aforementioned seal, there is a further cutout step located next to the wall 4. This cutout step is for receiving the adjacent facing member.

According to Figure 2, in one corner of the frame a vertical side portion 21 and a horizontal upper portion 22 of the cover abut each other. The ends of the portions 21 and 22 which engage each other are mitered. The horizontal cover portion 22 is provided from its rear side which is not visible from the outside, with a round recess 23 into which there has been inserted an expansion eccentric 24 in a manner known per se. The eccentric forms part of a concealed clamping fastener. The eccentric 24 is provided with a slot, not shown in detail, in order to be able to turn the same in the recess 23 by means of a screw driver at the rear of the facing members.

The vertical cover portion 21 has one of its mitered surfaces provided with a cylindrical receiving bore 25 which is perpendicular to the mitered sectional surface. A straight simple smooth cylindrical clamping or tightening pin 26 is inserted into the bore 25. That end portion of the tightening or clamping pin 26 which is closest to the bottom of bore 25 has a transverse bore 27 for receiving a locking pin means such as a locking pin.

This locking pin, which is not illustrated and may consist, for instance, of a nail, is hammered in from the rear or back side of the cover into the vertical cover portion 21 until it extends into the transverse bore 27 and thereby connects the pin 26 firmly and in a safe manner to the cover portion 21. It is only this design and connecting manner of the pin 26 which makes it possible to insert the pin 26 into the narrow end face or side surface of a relatively thin wooden board as it is generally used for frames or sashes and covers and which furthermore makes it possible to connect therein the pin 26 in such a way that neither a splitting or tearing of the wood will result when the pin 26 is connected in the receiving bore. In this way also unduly high clamping and pulling forces will be prevented from accidentally pulling pin 26 out of its receiving bore. That end of the pin 26 which protrudes from the cover portion 21 has a hammerhead shape and protrudes from the cover or facing portion 21 to such an extent that it can be passed through a bore 28 of the horizontal cover or facing portion 22 with the necessary and sufficient play in this bore 28 into the clamping eccentric occupying its unlocking position. By turning the eccentric 24, the hammer-shaped end of the pin 26 is caught from behind by a wedge-shaped portion of the eccentric as shown in the drawing and is additionally pulled into the horizontal covering or facing portion 22. In this way, the two facing portions are pulled against each other in a strong and in a gap-tight manner so as to be securely fastened together.

In order to precisely align the two facing portions and to secure them against distortion and shearing, guiding means in the form of two guiding dowels 29 and guiding bores are provided. The dowels extend perpendicularly with regard to the mitering surface and are engagingly inserted in the corresponding guiding bores on the mitering surfaces of the two facing portions. The dowels 29 may loosely, i.e. without being glued, extend on both sides into the guiding bores. Advantageously, the clamping or tightening pin 26 has that portion thereof which protrudes from the respective receiving bore provided with a non-illustrated marking which is so arranged with regard to the transverse bore that when the marking is located for instance precisely at the mitering surface of the facing portion 21 and is also perpendicular

to the broad side to the facing portion 21, a nail inserted into the facing portion 21 at the marking point will precisely hit the transverse bore.

As will be seen from the above, the frame or sash according to the present invention has in particular the following advantages. All plug connections between the facing members and the wall as well as between the facing members and the lining are not visible from the outside and can be produced and connected in a precise and simple manner. Holding means for the frame or sash as they were heretofore required and had to be plastered into the masonry or cemented thereinto or had to be otherwise connected thereto will no longer  
 10 be necessary. The filling in between the masonry and the lining for the frame or sash likewise becomes superfluous inasmuch as no direct connection of the lining with the masonry exists or is necessary. Inasmuch as the connection of the frame or sash is effected at its facing and therefore the lining can be maintained in a definite spaced relationship from the masonry, it will be appreciated that prior to the installation of the frame or sash, blind linings or the like as templet for the plastering of the raw masonry can be employed and do not have to be removed. When exchanging the frame or sash or other parts, the effective bores for the connecting dowels can again be used so that additional plastering and papering work will not be necessary.

20 From the preceding description it will also be evident that the connection according to the present invention has the great advantage over all heretofore employed steps in connection with the assembly of sashes or frames, that the assembly of the sash or frame and its installation into a wall breakthrough can be carried out very quickly, that a gluing at the corner connections of the cover or facing is not necessary, that the connection, nevertheless, is gap tight and resistant to distortions and shearing, and that all parts of the corner connection are invisible from the outside.

It is, of course, to be understood that the present invention is not limited to the specific showing and the specific application as disclosed  
 30 hereinbefore, but also comprises any modifications within the scope of the appended claims. Thus, the described connection between two cover or facing portions of a frame or sash can with the same advantages also be employed in

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other similar or like framework as, for instance, with the covers of so-called through pass (Durchreichen). The connection may also in the same manner be advantageously employed with skirtings or moldings which have been prefabricated for reasons of mass production at standard length, in order to put together these skirtings or moldings of any desired length in a gap-tight and distortion resistant manner without having to resort to gluing.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A door frame for an opening through a wall to receive a door, said frame comprising liner members having side surfaces parallel to and spaced apart approximately the thickness of said wall and extending along the sides and top of said opening and secured together at the corners, facing members for covering the faces of said wall surrounding said opening, said facing members on each side of said wall having fasteners connecting the top and side members at the corners and overlapping the side surfaces of said liner members, a plurality of cylindrical-shaped dowel fasteners perpendicular to the faces of said wall and fitting in holes in the faces of said wall and in holes in said facing members of less depth than the thickness of said facing members to form concealed fasteners, and means to fasten said facing members to opposite side edges of said liner members, said means comprising cylindrical-shaped dowel fasteners parallel to said first dowel fasteners in holes in one side surface of said liner members and in holes in the facing members on one side of said wall of less depth than the thickness of said facing members to form concealed fasteners, one side edge of the liner members having a cutout step inwardly of the side surface on the face opposite the wall to form a door abutment, the opposite side edge of said liner members having a cutout step on the opposite face adjacent the wall receiving the facing member on that side edge, the side surface on said side edge being formed by the bottom of said cutout step.

2. In a door frame as claimed in claim 1, in which the corners of said facing members are mitered, and the facing members are connected by concealed dowel-shaped fasteners fitting in holes in the mitered members, and a concealed clamping fastener between said facing members is operable from the rear side of said facing members to draw and secure said mitered members together.

3. A frame according to claim 1, in which the facing members include a vertical side piece and a horizontal upper piece abutting each other so as to form a corner, and which includes disengagable connecting means holding

together said abutting portions of said side and upper pieces, said disengageable connecting means comprising tightening eccentric means rotatably inserted into the back side of one of said pieces and also comprising a straight tightening pin having a smooth cylindrical portion inserted into a receiving bore formed in the other one of said two pieces forming said corner, said receiving bore extending perpendicularly with regard to the contacting surface of said last mentioned other one piece, said tightening pin having its cylindrical portion provided with a transverse bore, locking pin means inserted from the back side of the last mentioned piece and engaging said transverse bore so as to firmly contact said pin means with said last mentioned piece, that end of said locking pin means which is adjacent to said tightening eccentric means being hammer head shaped and being adapted to extend into the said tightening eccentric means, those surfaces of the corner forming pieces which contact each other at said corner being provided with guiding means detachably engaging perpendicularly with regard to the said contacting surfaces.

4. A frame according to claim 3, in which the two facing members forming a corner have their abutting surfaces at said corner mitered, and in which the tightening pin means extend perpendicularly with regard to said abutting surfaces, said guiding means comprising at least two dowels extending at a right angle with regard to said abutting surfaces and guiding bores in both of said corner forming facing members, said at least two dowels engaging said guiding bores.



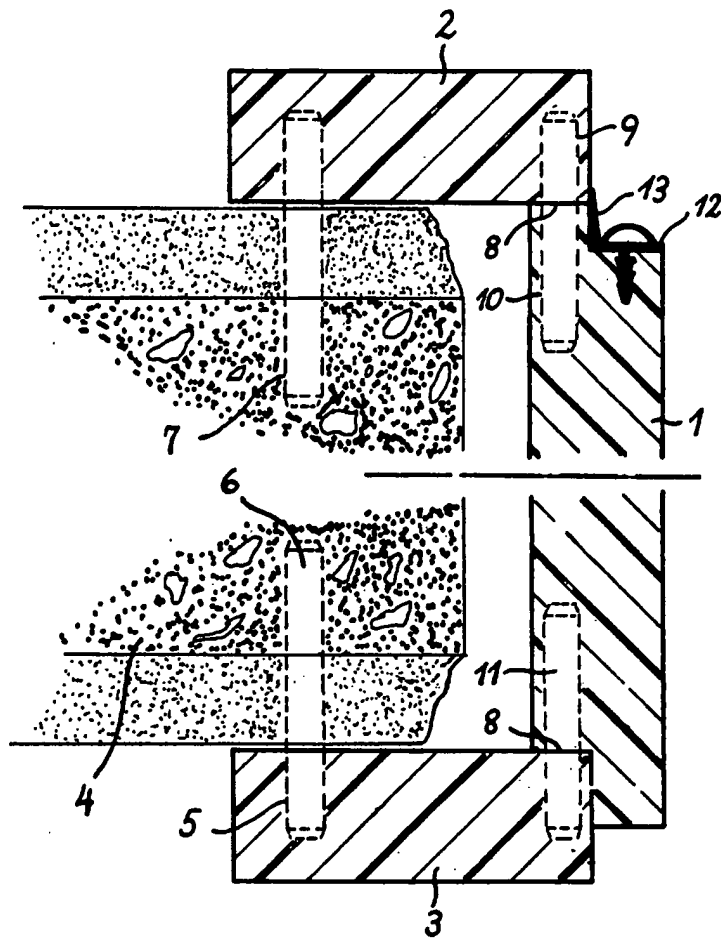


Fig. 1

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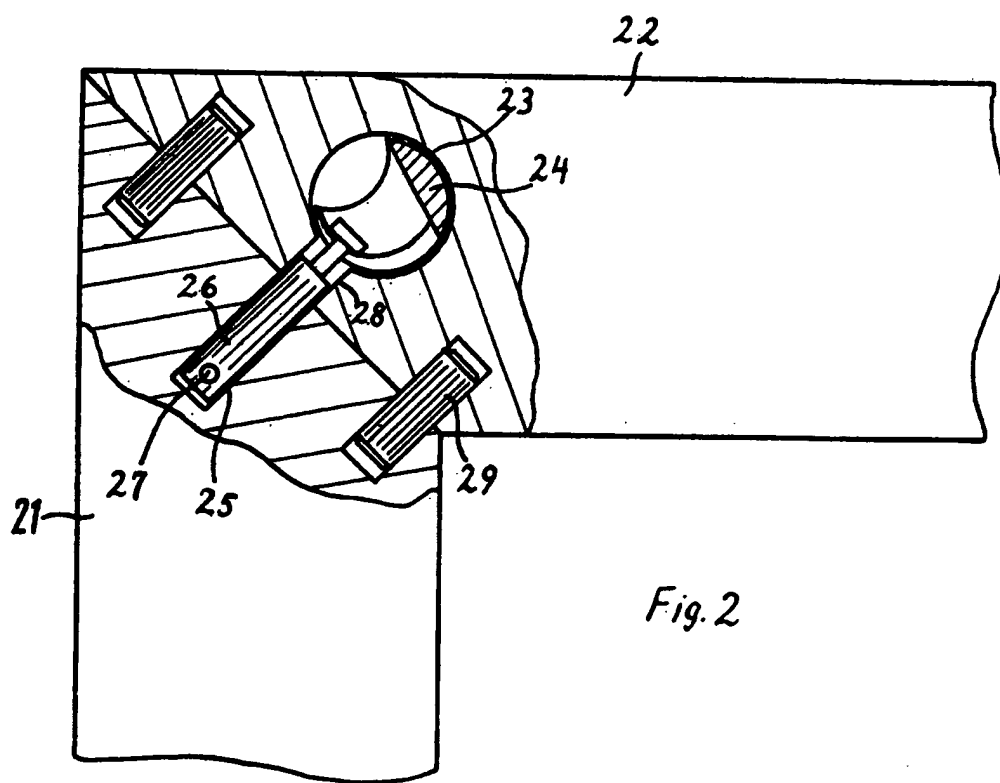


Fig. 2

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